



Chemical and Materials Information Management to Achieve Sustainable Engineering and Design for the 21st Century

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14. ABSTRACT There are several challenges to the implementation of environmentally preferred alternative technologies specifically related to chemical and materials information quality and availability. Identifying potential restricted materials and implementing alternative technologies is a risk management decision for a program manager and should be based on trusted information sources. A gap analysis of the DoD's current materials development and implementation process indicates that there is a lack of exchange of materials and process information early in the development cycle and throughout the lifecycle. In many cases the available data has insufficient pedigree information increasing the assumed risk. This insufficient data coordination results in duplication of effort, unintended ESOH impacts, failure to implement proven alternatives widely and expensive design modifications later in the lifecycle. Chemical and materials information is also necessary to support life-cycle decision making, logistical efforts like stockpile programs and new programs like the Model Based Enterprise (MBE). The Army MSAT (Materials Selection and Analysis Tool) is incorporated into the NASA Materials and Processes Technical Information System (MAPTIS) system and provides the capability to store, search, and retrieve non-classified material related data generated from commercial sources, DoD laboratories and their customers. This presentation will discuss overall program objectives and how MSAT will support system design, legacy system support and environmentally preferred alternative implementation. The coordination of DoD lifecycle efforts and logistics programs with the restricted chemicals and materials information system will result in a powerful tool for identifying restricted material use, providing designers, weapon system managers and maintainers access to information on regulatory impacts and supporting decision making on potential alternatives.		
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CHEMICAL AND MATERIALS INFORMATION MANAGEMENT TO ACHIEVE SUSTAINABLE ENGINEERING AND DESIGN FOR THE 21ST CENTURY

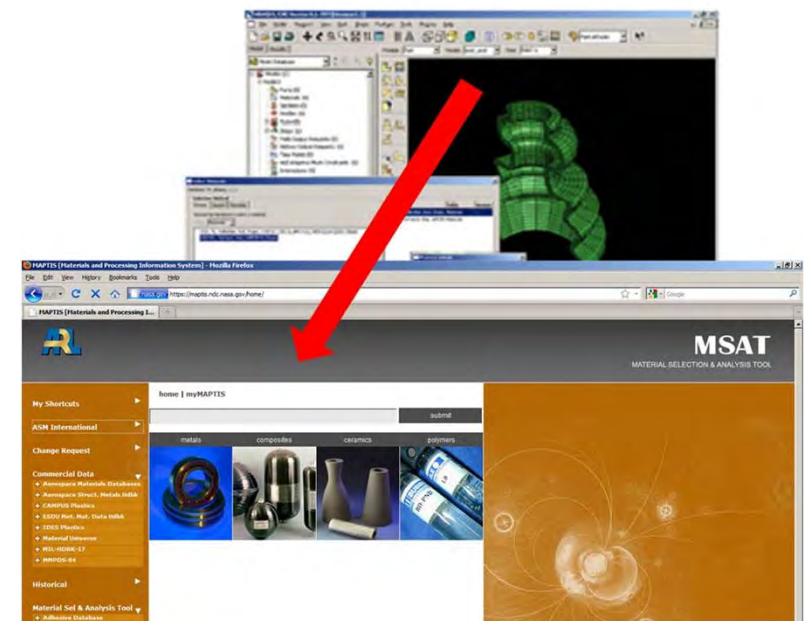
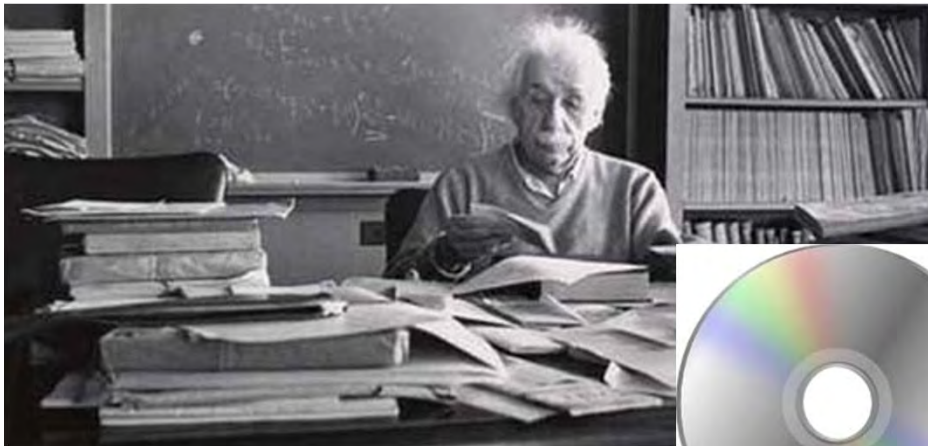
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Materials & Process Information Management

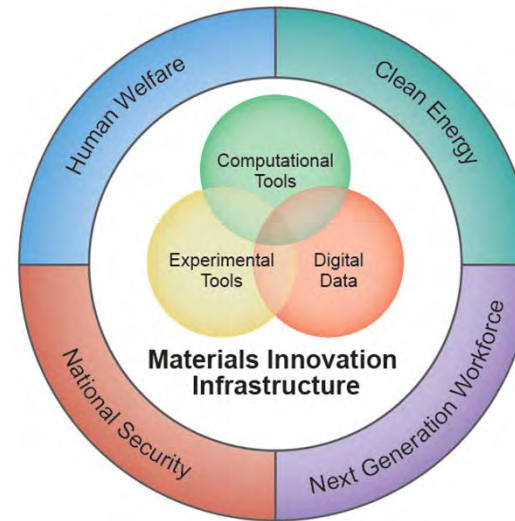




Two Part Challenge

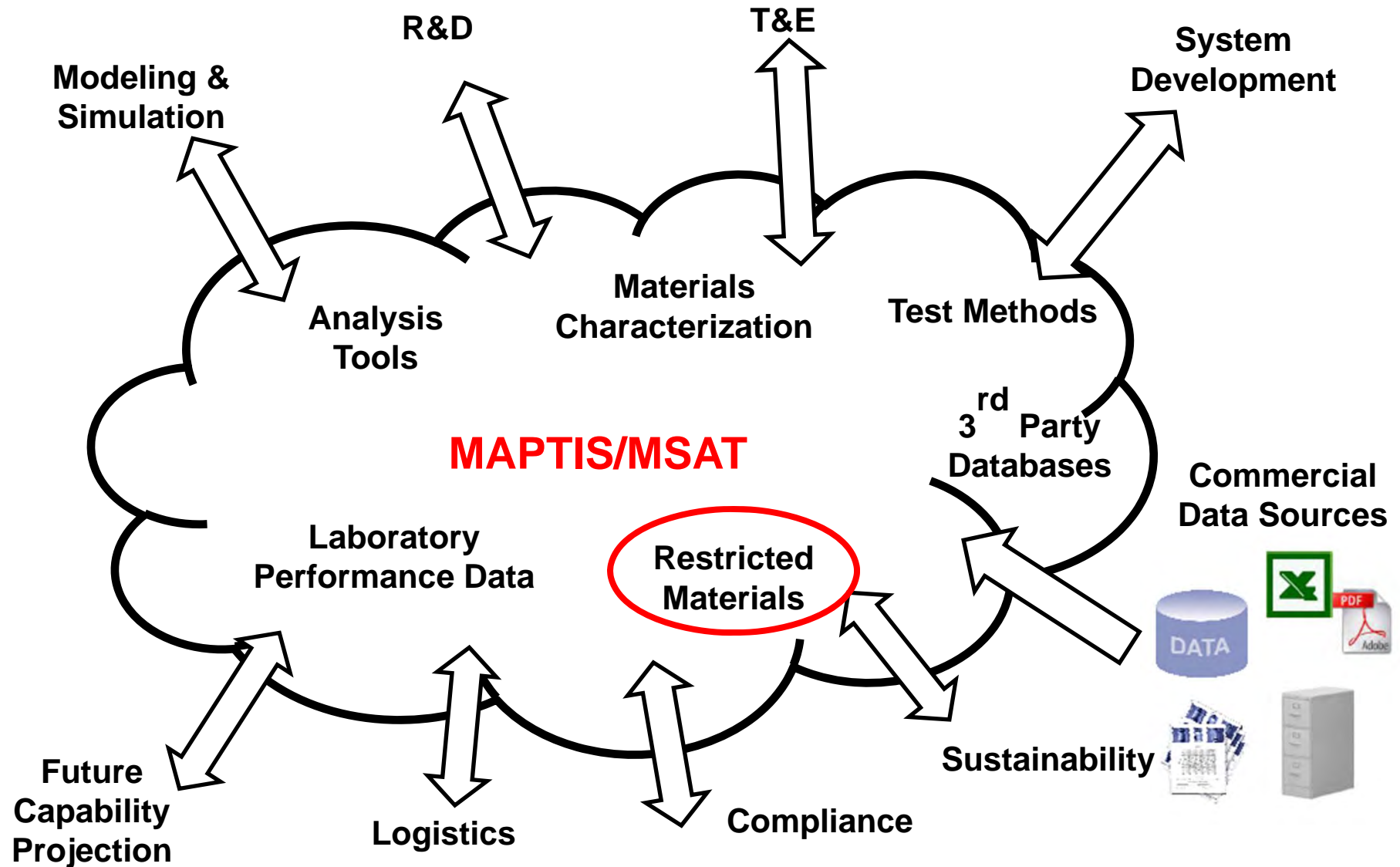


- Infrastructure
 - ICME, ICMSE
 - Materials Genome
- Information
 - Prohibited & Controlled Chemicals List
 - Restricted Substances Database





Solution – Distributed Information System





Material and Processing Technology Information System (MAPTIS)

Materials Selection & Analysis Tool (MSAT)

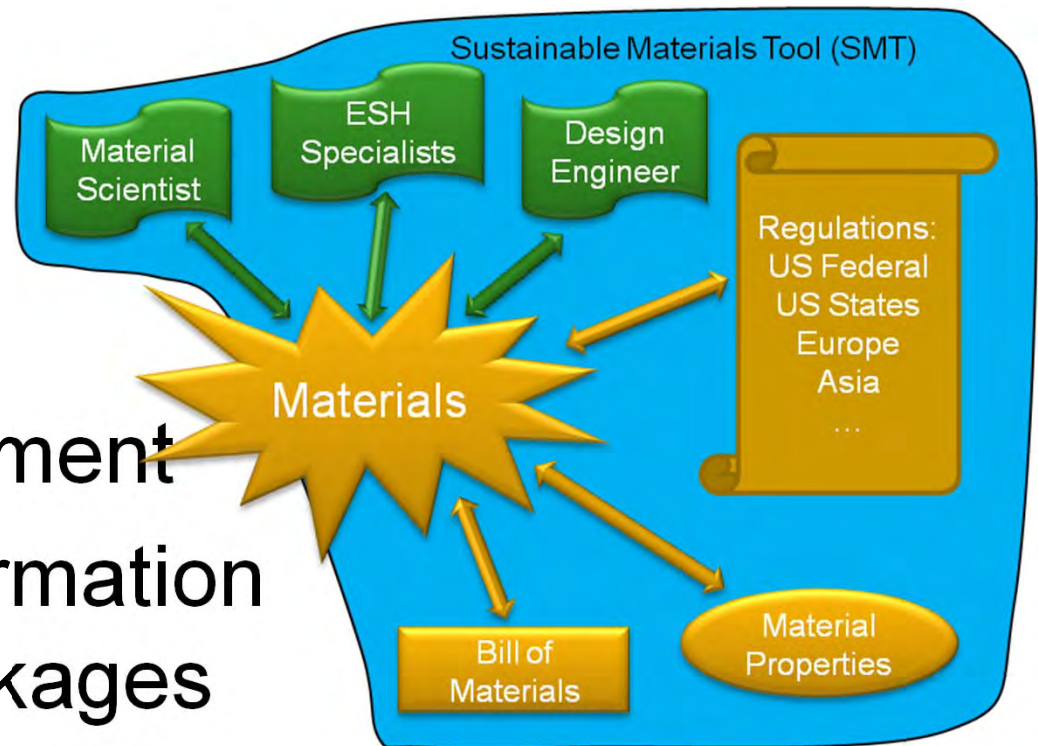
- Single point source for the purpose of acquiring, archiving and disseminating materials, substance, and process information throughout a product/ system life cycle



Sustainable Materials Tool (SMT)

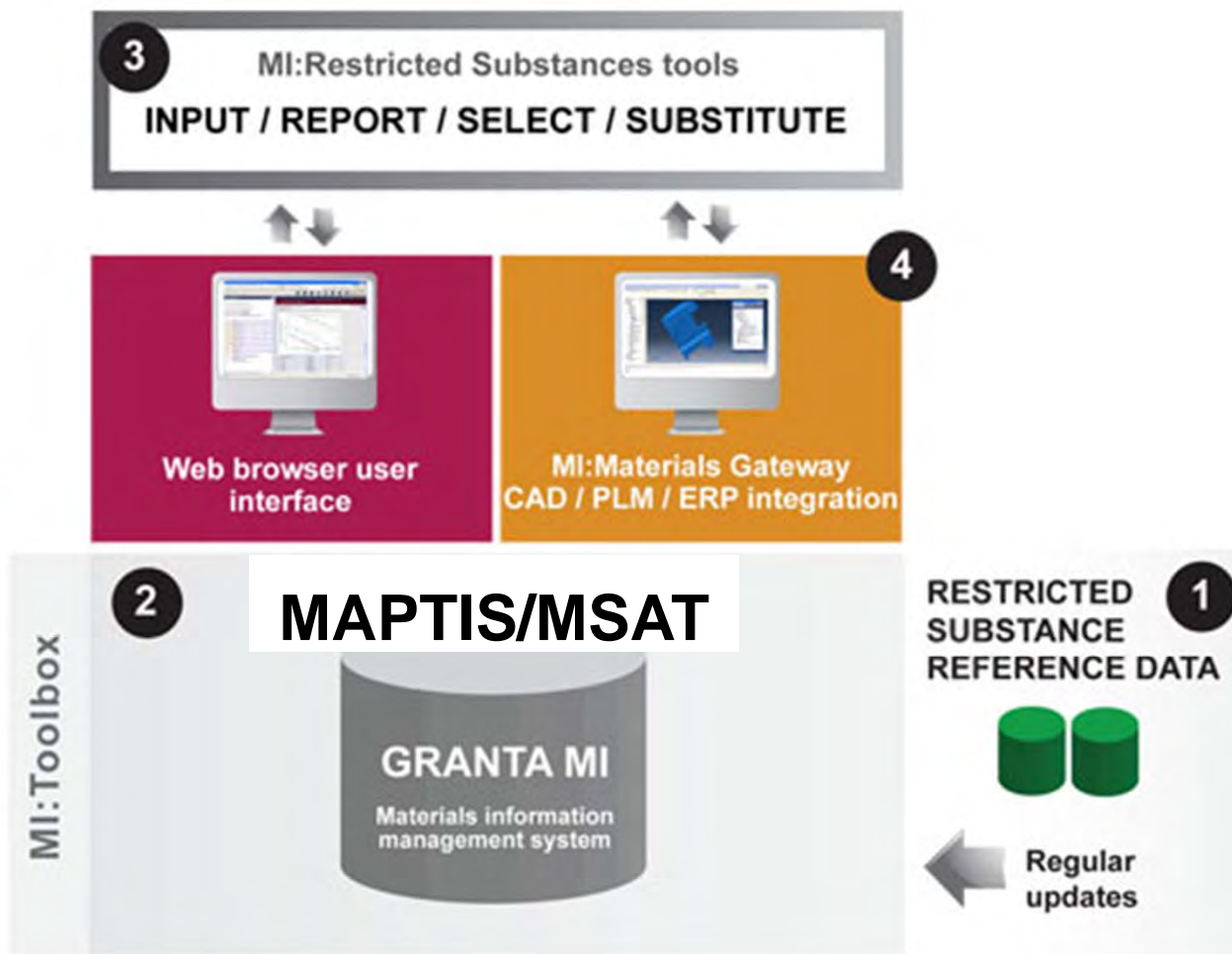


- Regulations (Domestic & Foreign)
- Integration for ESH specialists
- Integrate ESH considerations into technology development
- Access to ESH information from CAD/PLM packages



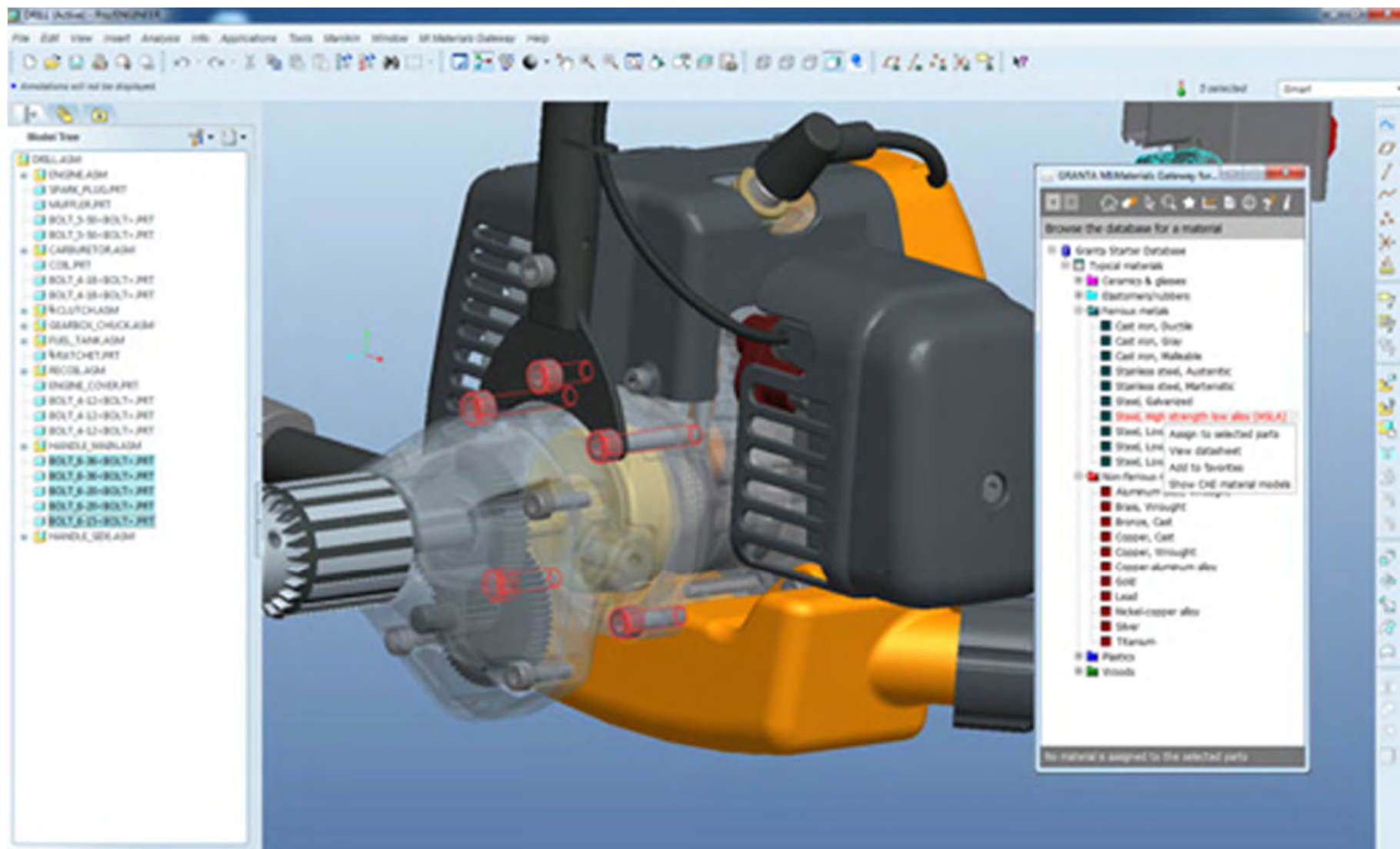


Restricted Substance Management





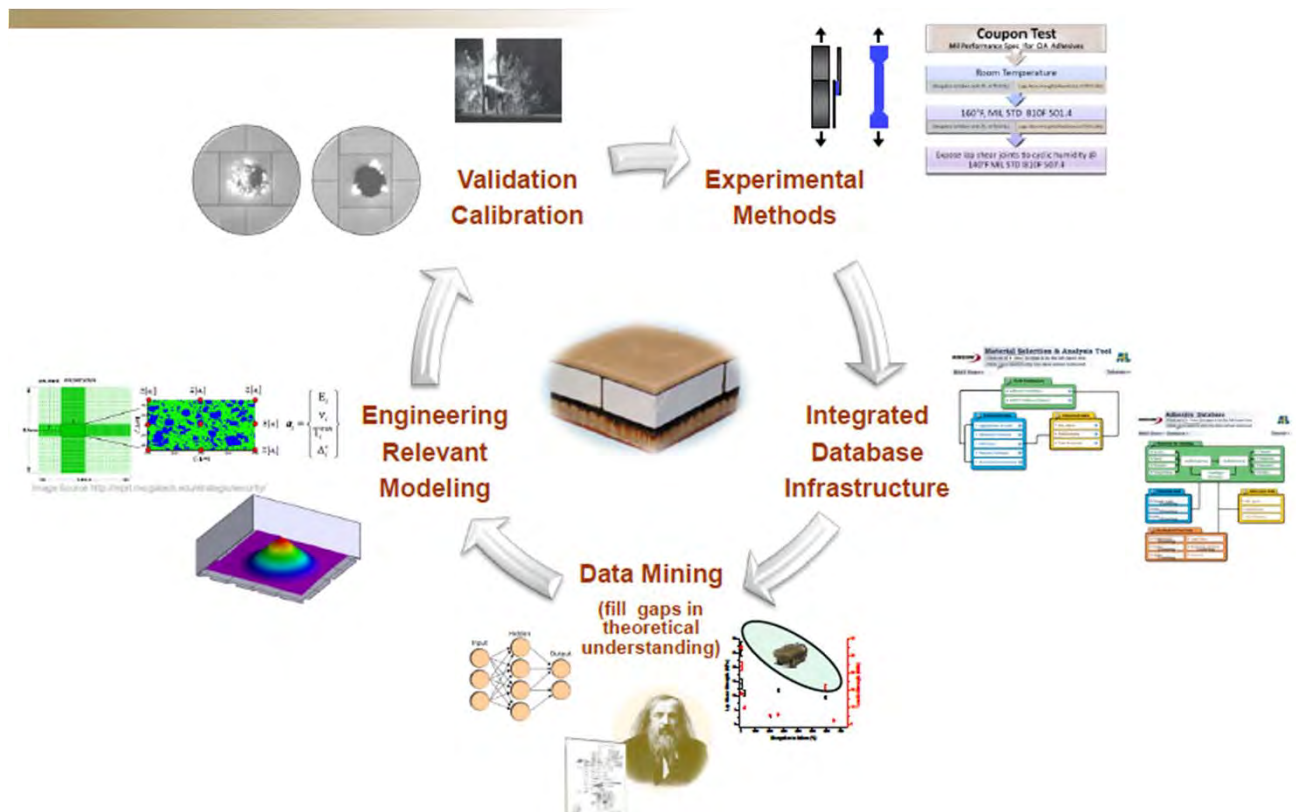
Integration to Design & System Software



Pilot Efforts

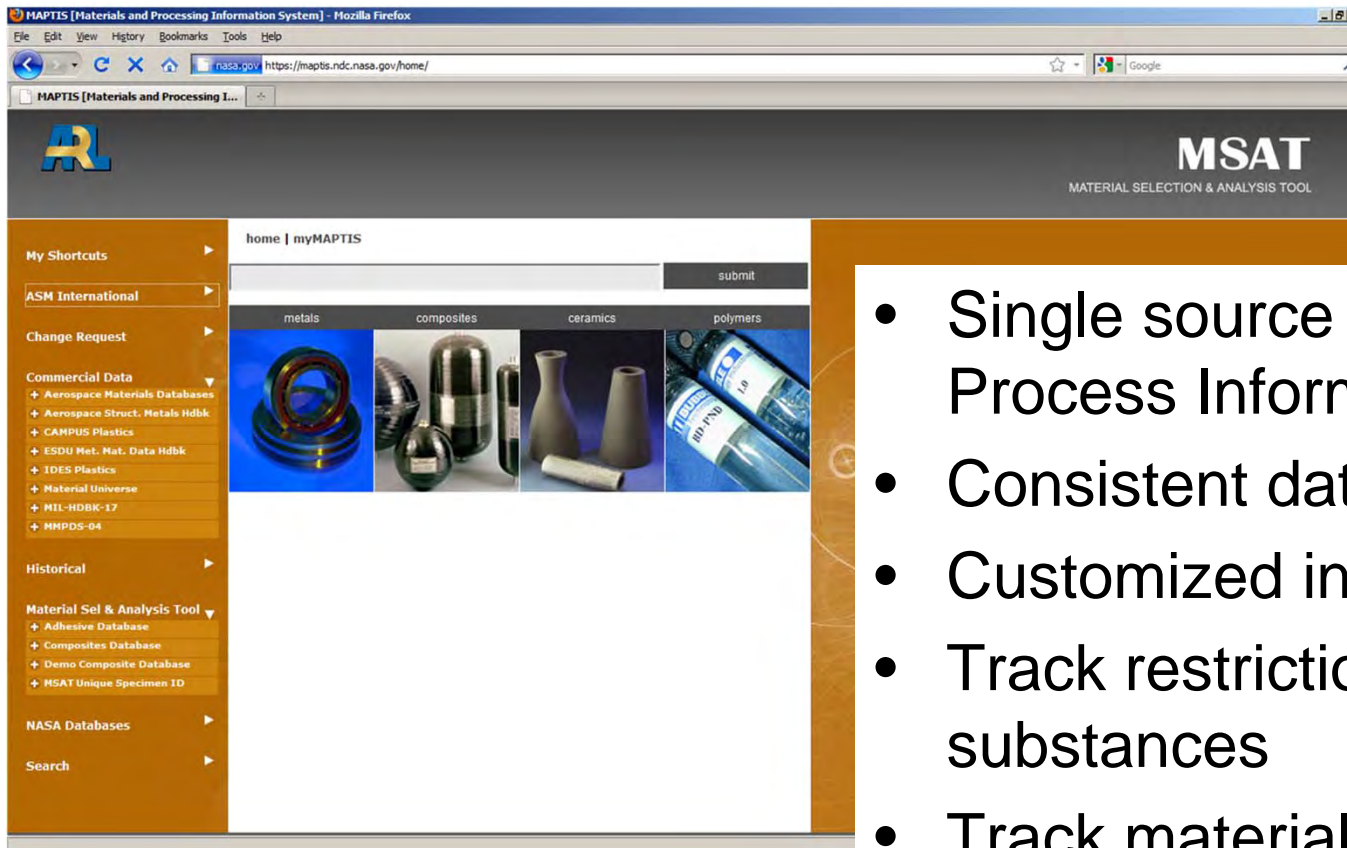


- Adhesives
- Composites
- Workflow management
- Informatics





MSAT/MAPTIS Vision



- Single source for Materials & Process Information
- Consistent data management
- Customized interfaces & tools
- Track restriction to materials & substances
- Track materials to components
- Target implementation strategies